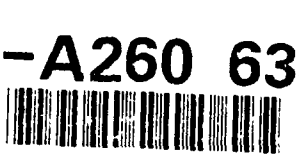

A RAND NOTE

Soldiers' Families: Tracking Their Well-Being During Peacetime and War

Jennifer Hawes-Dawson, Peter A. Morrison

RAND

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Jennifer Hawes-Dawson, Peter A. Morrison

Prepared for the United States Army

RAND

PREFACE

This Note is the outgrowth of a special assistance effort by the Arroyo Center for the Army Community and Family Support Center (CFSC) during Operations Desert Shield and Storm. Faced with the need for short-term information that could also be of long-term value, CFSC asked RAND to consider ways the Army could gain information about experiences of Army personnel and their families during similar fast-breaking events.

The document was prepared to address a wider question as well: How to query a representative sample of Army families and obtain timely information on topics of concern as changing policy needs and external events dictate.

The analysis and recommendations on how to meet future information needs will be of interest to policymakers responsible for community and family support, military survey practitioners, and leaders and managers within the Army personnel community.

The authors thank RAND colleagues Allan F. Abrahamse, who originated the idea of a panel survey with replicates, and Bruce Orvis, who reviewed and commented on an earlier draft of this document.

THE ARROYO CENTER

The Arroyo Center is the U.S. Army's federally funded research and development center (FFRDC) for studies and analysis operated by RAND. The Arroyo Center provides the Army with objective, independent analytic research on major policy and management concerns, emphasizing mid- and long-term problems. Its research is carried out in four programs: Strategy and Doctrine; Force Development and Technology; Military Logistics; and Manpower and Training.

Army Regulation 5-21 contains basic policy for the conduct of the Arroyo Center. The Army provides continuing guidance and oversight through the Arroyo Center Policy Committee (ACPC), which is co-chaired by the Vice Chief of Staff and by the Assistant Secretary for Research, Development, and Acquisition. Arroyo Center work is performed under contract MDA903-91-C-0006.

The Arroyo Center is housed in RAND's Army Research Division. RAND is a private, nonprofit institution that conducts analytic research on a wide range of public policy matters affecting the nation's security and welfare.

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SUMMARY

BACKGROUND

Army planners require timely information to meet family support and assistance needs. In peacetime, those information needs have been met through various surveys conducted within conventional timeframes. During periods of rapid change and policy debate, however, information needs are magnified and become more immediate. Questions may appear suddenly, only to change rapidly; attention may focus on a single segment of the population or the whole population. For example, during the deployment for Operations Desert Shield and Storm (ODS), disruptions in diverse family settings generated new questions needing immediate answers. Thus, what policymakers needed to know about those families was itself a moving target.

ODS exemplified a generic need in both peacetime and during transition to war: How to query a representative sample of Army families and obtain timely information on topics of concern that change quickly (or become evident only as events and policies unfold). This need emerged as the focus of a special assistance effort by the Arroyo Center to the Army Community and Family Support Center (CFSC) during ODS. This Note documents that need and our proposal for meeting it in future instances where quick-turnaround survey information is needed for defense policymaking purposes.

INFORMATION SUPPORT FOR ARMY FAMILY POLICY

The Army's needs for information about soldiers' families parallel the federal government's for civilian families. Civilian family needs can be closely monitored via nationally representative surveys of unemployment, income, household composition, childcare arrangements, and other facets of family well-being. The Army, in contrast, lacks ongoing surveys to meet its needs for timely information about soldiers' families, especially when those needs become acute during a transition to war. Policymakers require timely information on the needs of Army families and how (and how well) those needs are being met.

Illustrative of the concerns that surfaced during ODS are:

- *Erosion of family finances.* Families incurred extraordinary expenses when soldiers suddenly deployed.

- *Taking on new roles.* Spouses found themselves pressed into being auto mechanics, *de facto* single parents, managers of household budgets, and other roles they may not have been prepared to assume.
- *Lack of information from and about soldiers.* Spouses sought regular, reliable, timely information, but the "information famine" drove most to TV and the rumor mill.
- *Infeasible child and dependent care plans.* Such plans often were incomplete or out of date, potentially hampering deployability. Other functioning care plans broke down as circumstances changed.
- *Affordable childcare for working spouses.* Many spouses required periodic childcare to hold onto their jobs.

CHOOSING APPROPRIATE MODES OF DATA COLLECTION

The Army has various options for meeting its information needs. Table S.1 shows the principal data collection approaches we considered and the potential advantages each mode can offer. In certain instances, leading indicators or qualitative data collection may be the only feasible options for gathering information that is sufficiently timely (e.g., during a rapidly changing transition to war). In other instances, policymakers may need quantitative measures that will generalize to a relevant population of Army families. Here, the advantages of representative sample surveys (especially computer-assisted telephone surveys) may weigh most heavily in the choice of mode.

RECOMMENDATIONS

To accommodate a growing need for timely information, we devised a flexible survey plan that can be tailored to a broad spectrum of unforeseeable circumstances in peacetime and wartime contingencies. This plan affords the capacity for quick-turnaround response to information needs pertaining to family support as those information needs arise. We recommend this plan be considered for future use.

Our proposed survey plan relies on an ongoing panel of families who are recontacted periodically by telephone (to confirm their location) and are available for repeated computer-assisted telephone interviewing (CATI). To achieve representativeness, the sample is designed so that data gathered from it can be generalized to all Army families. The key innovation pertains to timeliness: the elapsed time from when the policymaker poses a question to the time when the survey delivers a generalizable answer can be narrowed at will to afford answers as quickly as needed.

Table S.1

Summary of Options for Meeting Needs

Option	Potential Advantage		
	Feasibility	Representativeness	Timeliness
Leading indicators (abstracted from existing administrative record)	+		+
Qualitative data collection (e.g., focus groups, site visits, semistructured interviews, observations)	+		+
Representative sample surveys (surveys mailed out and back)		+	
Telephone interview surveys (including computer-assisted telephone surveys)		+	+
Personal interview surveys		+	

Three features of this survey plan enhance its feasibility. First, lines of communication are maintained with an original sample, thereby providing a relatively easy and flexible way to field "minisurveys" as needed in response to unforeseen information needs. Second, workload can be varied at will to meet information needs according to level of urgency. Third, when soldiers who were deployed eventually reunite with families, a postwar reunion survey can be mounted swiftly using an existing sample whose history of continued recontact will improve overall response rates.

More generally, the recommended survey plan is a useful model for future military data collection efforts. The need for quick-response information about military personnel arises in all organizations that deal with personnel issues. Congress, for example, often requests data on issues that deal with the behavior, dispositions, and views of military personnel. The proposed survey plan could represent a "standing" panel of survey respondents, ready to be queried to obtain timely information about soldiers for the Executive Branch and Congress.

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1. INTRODUCTION

BACKGROUND

Until Operations Desert Shield and Storm (ODS), Army family support policy had addressed family needs during a prolonged period of peace. Families—and soldiers' family situations—had changed markedly over those two decades. Before Vietnam, only two-fifths of the force was married; by 1985, 58 percent of enlisted personnel and 79 percent of officers were married.

Today's Army family reflects the broad transformations of American families generally. As in civilian life, more spouses are working outside the home; more families are headed by soldiers who are single parents; and many of these single parents are women. Today's soldiers face broadening family obligations, drawing the Army further into the realm of family concerns that personnel themselves face. For military as well as civilian families, these new demographic realities have enlarged the information needs about family members and their well-being (Morrison et al., 1989).

The Army's needs for information about soldiers' families parallel the federal government's for civilian families. Civilian family needs can be closely monitored via nationally representative surveys that the Bureau of the Census conducts for numerous federal agencies.[1] The Army, by contrast, lacks ongoing surveys to meet its needs for information about soldiers' families in a timely fashion, especially when those needs become acute during a transition to war.[2]

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[1]Such surveys include, for example, the Current Population Survey, which monitors work experience, unemployment, sources of income, poverty, household composition, and other determinants of well-being; and the panel Survey of Income and Program Participation (SIPP), which tracks family members' program participation and eligibility on a regular basis and periodically surveys family-relevant topics (e.g., childcare, child support, and others). See Courtland (1991).

[2]The Community and Family Support Center's (CFSC's) efforts to survey Army families during the Gulf crisis highlighted the special difficulties inherent in conducting "quick-response surveys" in a military context. When Operations Desert Shield and Storm suddenly magnified Army information needs, CFSC embarked upon a three-phase inquiry into the support needs of and service utilization by families of soldiers and reservists mobilized for ODS. The first phase (early deployment) was carried out in Fall 1990. The information gathered was intended to inform the design of a mid-deployment survey, projected to be in the field by early 1991.

Changing events, however, disrupted the scheduled implementation of the mid-deployment survey. As it was about to be fielded, Operation Desert Storm commenced, forcing a temporary suspension of the survey. Shortly thereafter, hostilities ended, shifting the focus of interest to the anticipated reunion phase, where further information on soldier-family reunion was to be collected.

A major constraint is the Army's lack of a full-service in-house data collection facility to handle all phases of a quick-response survey (survey design, sample design, and data collection) on a tight timetable.[3] The Army relies heavily on outside contractors and other Army research institutions[4] for survey design and implementation support. This approach to military survey data collection, coupled with the Army's tendency to rely on mail surveys (rather than other quick-response methods, like telephone interviewing), does not lend itself to mounting quick-response surveys in a timely, cost-effective manner. Surveying Army families during the Gulf crisis also confirmed what past military survey research has shown about the difficulty of locating and surveying highly mobile active-duty military families.[5] Army spouses, especially, are difficult to survey even under peacetime conditions, because current mailing addresses and home telephone numbers are not readily available. These family-locating problems proliferated during the Gulf crisis. The Army (CFSC) and its survey contractors encountered formidable problems in trying to assemble accurate home addresses and phone numbers for family members to be surveyed by mail.[6] In ODS (and probably any such crisis), family living arrangements change. Spouses often are not where they were a few months ago; addresses and telephone numbers that are current favor the self-selected ones who stayed put.

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[3]The Army has a limited in-house survey capacity for conducting periodic anonymous mail surveys of its personnel. The Army Personnel Survey Division within the U.S. Army Personnel Integration Command (USAPIC) conducts regular Sample Surveys of Military Personnel (SSMP) twice a year—in the fall and spring. It also conducts periodic special topic surveys of military personnel (and their families). For example, USAPIC conducted the first Army-wide Survey of Army Families during 1987 and planned to conduct another during the fall of 1991. USAPIC surveys are usually administered as anonymous mail surveys, which means that it is not possible to link individual survey responses with other military administrative records or databases for additional manpower analyses (e.g., retention studies).

The Army does not have sufficient staff or technical resources within its Army Personnel Survey Division to conduct "quick-response surveys" that use state-of-the-art primary data collection methods. Such methods include computer-assisted telephone interviewing (CATI), commonly used by federal agencies such as the Bureau of the Census, Department of Agriculture, and Department of Defense to collect rapid-turnaround survey data in a matter of days or weeks.

[4]Two such institutions are the Army Research Institute (ARI) and the Walter Reed Army Institute of Research (WRAIR).

[5]RAND's experience with the 1987 Army Family Programs and Readiness Survey pinpointed several response rate trends: (1) spouses are more difficult to locate and survey than military members (responses are about 10 percent lower), and (2) response rates tend to be much lower (often 10 percent lower) among certain critical subgroups—spouses of junior enlisted personnel (E1–E4), nonwhite spouses, and male spouses. Most of these response rate trends have also been observed on other DoD and Army-sponsored surveys of military families (Hawes, 1988).

[6]CFSC attempted to collect home addresses and phone numbers directly from the sampled bases because the families were geographically clustered around a handful of Army installations.

OBJECTIVE

RAND was in an advisory capacity to CFSC from fall 1990 through spring 1991. Our experience during that period afforded insight into a generic need that extends beyond a transition to war: *the capacity to query a representative sample of Army families and obtain timely answers to questions posed on short notice*. To address this problem, we designed a survey plan tailored to the changing 1990s information needs.

ORGANIZATION OF THIS DOCUMENT

We first delineate certain information needs that pertain to family well-being and support in a transition-to-war context. Section 2 explores what Army planners should know about the inevitable disruptions that arise in that context.

In Sec. 3, we examine several kinds of primary data-collection options for meeting those needs. These include: (1) record abstraction to collect easily available indicator data (e.g., information from the Army Family Assistance Hotline or administrative records maintained by Army Family Support Providers); (2) qualitative data collection (e.g., case studies, focus groups, observations, site visits, elite interviews); and (3) representative sample surveys, including cross-sectional and longitudinal designs. We also offer guidelines for evaluating each alternative in terms of relevant criteria.

Finally, Sec. 4 develops an approach for meeting future information needs that arise under a broad range of eventualities, including unforeseeable future mobilizations like ODS. The foundation of this approach is an ongoing computer-assisted telephone survey of Army families, sampled so as to afford quick-turnaround information that can be generalized to a relevant Army population.

2. INFORMATION SUPPORT FOR ARMY FAMILY POLICY

Army planners require timely information to meet family support and assistance needs. Such information needs exist under a broad spectrum of unforeseeable circumstances in peacetime and wartime contingencies. In some circumstances, these information needs are magnified and become more immediate. It is no longer feasible to plan and execute surveys on conventional schedules. Generalizing from the ODS experience, we can foresee likely information needs during similar crises in the future. The predominant family situation of most soldiers can be characterized this way:

- The typical soldier is married, sharing obligations with immediate family members, including a spouse (typically employed).
- Family members are acclimated to no-notice alerts, temporary deployments, and other separations that Army family life involves. Their experiences, though, are confined to separations that are brief or of known duration.
- A transition to war intensifies families' needs as separations lengthen and coping mechanisms fail. Army support services designed to meet the needs of families in peacetime cannot fully anticipate the new needs that arise.
- Eventually, soldier and family members reunite, a phase with its own distinctive support needs. Family living arrangements, finances, and even membership may have changed.

The distinctive needs that arise during a transition to war call for information that is both timely and generalizable. The Army's toll-free Family Assistance Hotline afforded a timely barometer of needs. The hotline was set up to answer inquiries from Army families in mid-August 1990; all incoming calls were logged and categorized by the type of assistance requested. Such "leading indicator" data furnish very timely reflections of family members' concerns. However, such reflections cannot safely be generalized to a relevant population of Army families because they reflect the concerns only of those individuals who know of the hotline and choose to use it.

During a transition to war, what policymakers need to know about these families is itself a moving target. The most important features of the necessary information, therefore, are timeliness, generalizability, and responsiveness. Given these requirements, policymakers need to know both the needs of the families and how (and how well) those needs are being met.

As family needs expand during transition to war, more people may avail themselves of a given service the Army provides. Leading indicators that foreshadow expanding need can alert planners to direct additional resources to meet impending new demands. Unanticipated new needs may emerge, posing unanswered questions about the nature of the need, how it is being met, and where gaps are appearing.

As support needs expand, service providers improvise to meet them. Planners need quick feedback on which improvisations are proving effective and why.

3. MEETING INFORMATION NEEDS

This section reviews alternative ways to meet family information needs. We consider: (1) leading indicators from military records and existing databases, (2) qualitative data collection, and (3) alternative designs for conducting representative sample surveys. For each alternative, we consider the inherent strengths and weaknesses and suitability for the rapidly changing context of a transition to war.

Table 1 shows the principal data collection approaches and the potential advantages each mode can offer. The options themselves are discussed below in more detail.

Table 1

Summary of Options for Meeting Needs

	Potential Advantage		
Option	Feasibility	Representativeness	Timeliness
Leading indicators (abstracted from existing administrative record)	+		+
Qualitative data collection (e.g., focus groups, site visits, semistructured interviews, observations)	+		+
Representative sample surveys[a] (surveys mailed out and back)		+	
Telephone interview surveys (including computer-assisted telephone surveys)		+	+
Personal interview surveys		+	

[a]A well-designed and implemented mail survey can produce results that are representative of the study population. However, the low response rates often associated with mail surveys of military families can bias survey findings, undermining their representativeness. Bias may occur whenever the survey nonresponse is high and nonrandom (e.g., resulting in underrepresentation of, say, junior enlisted personnel and their families).

LEADING INDICATORS

Leading indicators can reveal the emergence or expansion of family-support needs. Incoming calls on the Army Family Assistance hotline, for example, indicate families' changing concerns as events unfolded during ODS. Periodic data on the number of Army

emergency relief assistance loans indicate family financial crises that materialized at particular installations. The potential advantage of such leading indicators is their combination of feasibility and timeliness in yielding rapid feedback on developing problems.

Figure 1 illustrates the summary information that could be derived from the data collected on the Family Assistance Hotline logs during ODS.[7] Such data may be useful in several ways.

- *To spot expanding needs.* The data show a sharp escalation in the daily volume of requests, from fewer than 60 per day to nearly 1000 completed calls per day after conflict began.[8] Requests for troop/unit deployment information show the steepest increase from December 1990 onward.
- *To identify who experiences the need.* The hotline attracted calls from a large pool of extended family members who had no affiliation with installation family support groups. Most callers were parents of single soldiers, siblings, and other relatives or friends inquiring about specific locations of soldiers and an address for mailing.
- *To track changing needs.* Many initial requests pertained to queries about postal services (e.g., requests for APO numbers and information on postal restrictions). Once hostilities began in January, requests for troop/unit deployment information dominated the incoming calls. Queries about family services or referrals to Family Assistance Centers (FACs) peaked in December at 11 percent; that share tapered off after the Christmas holidays.

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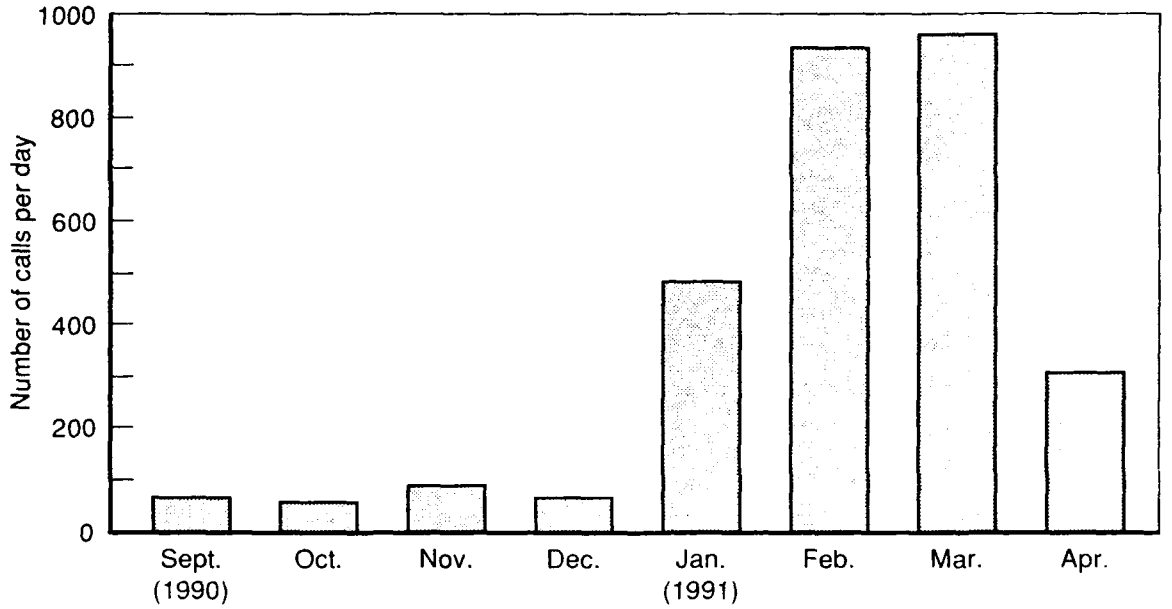
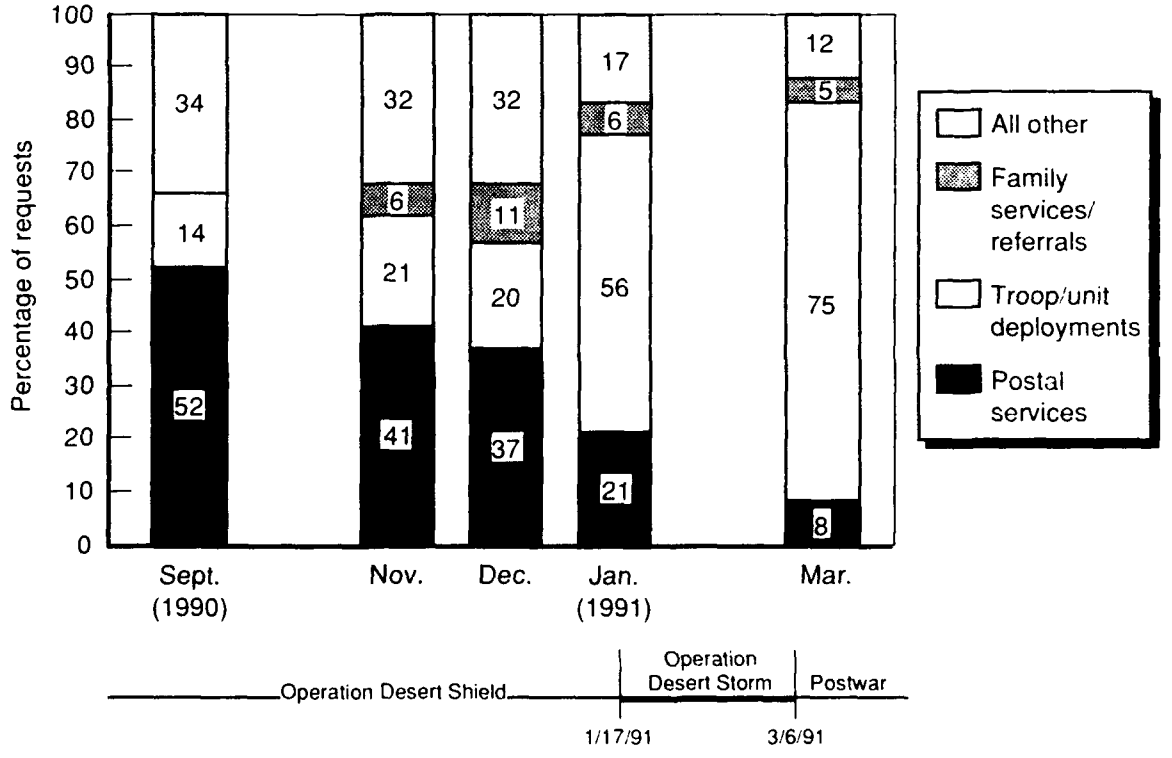
[7]The Army's Family Assistance Hotline was activated on 13 August 1990 and operated continuously until 12 April 1991. During the operation, more than 79,700 inquiries were received, the majority (69,067) during the Desert Storm portion of the operation. The hotline operated 24 hours per day, seven days per week, during periods of peak demand to provide direct and referral assistance for the family members of soldiers deployed with ODS. The Family Assistance Hotline was terminated on 12 April 1991.

The hotline served as a safety net for remote families. It also led to the early identification of problems with other systems within the Army and to early resolution of potential problems. Extended families—parents, siblings, grandparents, aunts, and uncles—were the major consumers of services. The hotline educated the extended family on military terms and procedures and became a path for information, reassurance, and learning. Source: Unpublished draft of a CFSC Information Paper by Jan Hinkle, "Family Assistance Hotline After Action Report," dated 29 April 1991.

[8]A one-time count of the number of attempts to contact the hotline conducted by the telephone company on 4 and 5 February 1991 revealed that there were more than 24,000 line attempts in a 24-hour period. Since most telephones have a redial capability, the actual number of inquiries was probably significantly lower than the number of attempts. Nearly 1000 of 24,000 attempted calls were answered. Source: "Family Assistance Hotline After Action Report."



a. Average Daily Volume of Requests



b. Type of Assistance Requested

Fig. 1—Summary of Incoming Calls to Family Assistance Hotline During Operations Desert Shield/Storm

Abstracting such "leading indicator" data from sources like the Family Assistance Hotline or the Emergency Relief Loan records affords an extremely cost-effective alternative to more costly primary data collection methods. (Many other potentially informative indicators of family support needs and concerns during ODS were contained in less accessible administrative by-product records.)

Although such indicators present broadly consistent pictures of major trends, they are imperfect indicators of family needs in the population as a whole. A preferable future alternative is a set of different indicators derived from the entire network of Army Family Support Providers who are in frequent and direct contact with Army families. This will require routine collection and archiving of case-specific information about the numbers of families requesting assistance and the type of assistance provided.

Leading indicators are, by definition, *indicators*, and their potential uses may be circumscribed. Representativeness may be questionable when the indicator derives from highly self-selected behavior. (Persons calling the Family Assistance Hotline, for example, are unlikely to be a representative cross-section of all Army family members.) What leading indicators do register are the early (and timely) manifestations of specific needs. By doing so, they can alert planners to impending problems that may need to be examined more systematically. For example, the need for "soldier location" information became apparent from the first incoming requests to the hotline.

QUALITATIVE DATA COLLECTION

Qualitative data collection is the second option in Table 1. Qualitative approaches include case studies, focus groups,[9] site visits, and field observations. They are commonly used during the early planning or exploratory stage of a project so that researchers can enrich their understanding of the phenomena under investigation prior to mounting a larger, more costly survey. They may also be useful to decisionmakers to convey a sense of the range of concerns and needs among the target population.

Qualitative approaches often are made on a small scale in a few carefully chosen sites where teams of data collectors carry out an in-depth case study of the sample population. A major advantage of open-ended, face-to-face interviewing is the ease of establishing rapport and gaining cooperation. With a relatively small sample of respondents, the interviewer has great flexibility to probe and clarify issues on the spot and to collect highly detailed information. In addition, interviewing at several sites that represent a mix of experiences

[9]For a discussion of the purpose and use of focus groups in research, see Stewart and Shamdasani (1990).

allows comparisons among the case studies. As a result, common elements in participants' responses can be identified. Together with information from other sources (e.g., informal interviews with a "convenience-based" sample[10] of spouses), those common elements become useful indicators of major trends and findings. The end result of this process is a set of insights supported by a rich qualitative database. Such a database can also be used for content analysis, a useful first step in developing research hypotheses to guide further quantitative data collection.

Qualitative data collection, however, has several major drawbacks. First, the methodology is completely dependent on the skills of field interviewers and their ability to follow up on leads and avoid premature closure. Careful training and thorough knowledge of instruments and research objectives are crucial. Second, it is often difficult and time-consuming to put together a synthesis of major findings from case-study write-ups and interview notes. Finally, it is not possible to ascertain the extent to which the findings represent the target population as a whole.

Apart from these inherent limitations, the qualitative approach has a primary strength. It can reveal patterns that give important direction to corrective management actions and further research. As an illustration, the CFSC conducted a case study in October 1990 (only two months after ODS commenced) of how the deployment was affecting families and what various elements of the Army were doing to assist families.[11] The study's findings illustrate how a quick-turnaround case study can give direction to further research as well as amplify on the "early warnings" given by leading indicators:[12]

- *Erosion of family finances.* The study revealed that families incurred extraordinary expenses when soldiers suddenly deployed. Some went on urgent

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[10]A "convenience-based" sample is one chosen to include the population of interest and be easily accessed rather than to represent that population.

[11]This study (the first phase of a more extensive and systematic projected inquiry) was intended to supplement fragmentary reports from the field. Teams of interviewers conducted semistructured individual and group interviews with a convenience-based sample of (1) families of deployed soldiers, (2) service providers (e.g., family support group leaders, program staff, rear detachment commanders, and unit/post leaders), and (3) other individuals especially familiar with what families were receiving or needed. Over a four-week period, a team of about 25 interviewers from ARI, WRAIR, CFSC, and USAPIC visited five installations, chosen to provide a broad range of experience in deploying troops plus a unique feature (e.g., being primarily a mobilization site vs. a training installation). Within each installation, interviews were sought with a variety of units. The 20 reserve component units were intentionally chosen to provide natural contrasts between the Army National Guard (ARNG) and U.S. Army Reserve (USAR), urban and rural units, large and small units, and units that deployed within CONUS and those who were sent OCONUS (outside Continental United States).

[12]The following description is drawn from notes for a 9 November 1990 briefing by LTC David J. Westhuis entitled "Human Factors in Operation Desert Shield: The Role of Family Factors."

shopping trips to equip their soldiers with various necessities (e.g., CA50 gear); others incurred telephone, fax, and shipping expenses or hired babysitters to fill in for the missing parent's time. Families that had moved faced extraordinary expenses associated with relocation or commercial storage of personal possessions for an absence of unknown duration.

- *Taking on new roles.* Spouses found themselves pressed into being auto mechanics, *de facto* single parents, managers of household budgets, and other roles they may not have been prepared to assume.
- *Lack of information from and about soldiers.* Spouses sought regular, reliable, timely information, but the "information famine" drove most to TV and the rumor mill.
- *Heightened anxiety among families without prior deployment experience.* The Army requirement that the soldier plan and practice for deployment appeared to be paying off. Families in units that "exercised" this plan appeared to be better adjusted.
- *Predeployment briefings.* Families benefited from what they learned through such briefings. For some, however, too much information had been given at one time and pertained less to families than to soldiers. Local information (i.e., names of agencies and phone numbers to call in various situations) proved to be especially helpful.
- *Infeasible child and dependent care plans.* Such plans were sometimes incomplete or out of date. (Examples of such plans included one that listed a grandmother—who by then was recovering from a heart attack—to watch a preschooler, and one that called for transporting children from the post to the caretaker but neglected to allow for payment of transportation.) Other functioning care plans broke down as circumstances changed.
- *Affordable childcare for working spouses.* Many spouses required periodic childcare to hold on to their jobs.

A case study can enrich understanding and sharpen the focus on the next inevitable question: How prevalent are particular types of situations, and among whom? That question can be answered only from a sample furnishing a *representative* cross section of families. The specific requirement here is a sample design that produces data from which one can generalize statistically to some relevant population.

REPRESENTATIVE SAMPLE SURVEYS

Selecting the optimal study design requires a balance of research goals and data requirements against the likely costs of different strategies. Considerations include the expected reliability and validity of survey responses, response rates and longitudinal tracking ability, constraints on selection of survey method(s), and the ease and cost of survey operations.

In this section, we review two major survey design issues faced early on in survey planning:

1. *Sample design*: How will a representative sample of the study population be selected, and which sampling approach—cross-sectional or longitudinal surveys—will be used to ensure that the survey results can be generalized to the relevant universe?
2. *Survey method*: Which interview method (mail, telephone, and/or personal interviews) is best suited to the overall research objectives?

We begin with a general discussion of the strengths and limitations of design alternatives and the major factors to be considered.

Sample Design: Cross-Sectional vs. Longitudinal

Representative sample surveys can be conducted in two ways: (1) a cross-sectional design and (2) a longitudinal panel design. A cross-sectional survey design entails selecting an entirely new (representative) sample of the study population for each new survey. The individuals interviewed each time are *different* individuals. A longitudinal or panel survey entails selecting and tracking a representative sample of the study population and reinterviewing the *same* individuals (or a sample of them) periodically to monitor and explain changes (at the group and individual level) over time.

Longitudinal panels must successfully locate and interview a high percentage of respondents from one survey wave to the next; otherwise, the information they generate will have limited analytic value.[13] Normally, response rates of 90 percent or better are required. The major disadvantage of a longitudinal design is that it requires a high retention rate between waves of interviews. Even a modest attrition rate (say, 10 percent) for each wave accumulates over waves into very high attrition rates for the later waves. If high sample attrition occurs in a longitudinal panel, it will erode cross-sectional

[13]For a discussion of these and related issues in panel studies, see Duncan et al. (1984); Hsiao (1985); and Subcommittee on Longitudinal Surveys (1986).

representativeness because of cumulative sample loss over the life of the study.[14] Where cross-sectional analyses are all one needs, it may be preferable to select separate cross-sectional samples rather than commit to a longitudinal approach.

Compared with longitudinal panel designs, cross-sectional surveys generally require less extensive tracking of survey respondents. That difference can translate into substantially lower survey costs because (a) less expensive survey methods (e.g., mail surveys) are often used to minimize costs and (b) fewer resources have to be invested in expensive tracking and follow-up of nonrespondents (who normally require tracking by phone or face-to-face interview methods).

On the negative side, the civilian research literature has shown that the less extensive tracking methods commonly used in cross-sectional surveys can lead to sample bias through underrepresentation of difficult-to-survey subgroups (e.g., blacks, young adults, and low income families).[15] Researchers reweight the survey data to eliminate such bias insofar as possible. Less extensive tracking, in short, may compromise the data, although not necessarily ruin their quality.

Apart from these differences, both cross-sectional and longitudinal designs are designed to collect policy-relevant information from a representative sample of the study population that can be *generalized* to some relevant universe. If the sample design or implementation is seriously flawed and if a representative sample of the study population is not successfully drawn, it is virtually impossible to generalize the results to the larger study population. Without a well-designed representative sample, the sample survey amounts to only a large and uneconomical case study.

Survey Method

The primary choices for the method of data collection include personal interviews, mail, and telephone surveys.[16] Each has particular advantages and drawbacks that are worth considering, as outlined below.

Personal Interview Surveys. Face-to-face survey methods afford maximum design flexibility for long and complex surveys, a proven track record of obtaining high response rates (commonly in the 90 percent range), and high-quality data. Personal interviewing also

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[14]For example, a 10 percent attrition rate on each of four successive waves leaves only 66 percent of the original panel by the fifth interview.

[15]See Duncan et al. (1984) on the characteristics of nonrespondents and procedures for addressing nonresponse bias.

[16]The choice of data collection mode is difficult and complex, and depends heavily on the particular study situation. For a thorough discussion of these considerations, see Fowler (1990).

has distinct disadvantages, one of which is a lengthier period of data collection (compared with phone procedures). Personal interviews are far more costly than telephone or mail/self-administered surveys, particularly if the survey is large and geographically dispersed.[17] Traditionally, face-to-face interview methods have been the primary data collection mode used on most longitudinal surveys and general household-based sample surveys. As the cost of personal interviews has escalated over the years, researchers have relied increasingly on alternative, less costly strategies, such as mail or self-administered surveys, telephone surveys, or some combination of methods.

Mail Out/Mail Back Surveys. If valid mailing addresses exist, mail surveys can be sensible for large samples, especially those that are not clustered. Most DoD-sponsored surveys of military personnel and their families rely almost exclusively on mail survey methods. The response rates they yield average about 70 percent for enlisted military members and 52 percent for spouses (DMDC, 1986). The major advantages of mail surveys are:

- They are relatively economical;
- They can be carried out with minimal staff and facilities;
- They are especially effective for reaching samples that are widely dispersed or difficult to reach by phone; and
- They afford respondents sufficient time to furnish thoughtful answers, look up records, and so forth.

Mail surveys have several drawbacks, especially in a military context. They require long lead times to ensure sufficient time for the survey distribution and collection and for follow-up of nonrespondents. In general, nonresponse is more problematic in mail surveys than in alternative methods. Simply mailing questionnaires to a sample without appropriate follow-up procedures rarely yields a rate of return above 30 percent. However, with an extensive and appropriate follow-up procedure as part of a well-designed and executed mail survey, it is possible to achieve a response rate similar to those achievable using other modes (e.g., Dillman et al., 1974).

Certain military subgroups, particularly highly mobile Army personnel and junior enlisted personnel, are harder to reach by mail because they are difficult to locate (owing to the high rate of permanent change-of-station (PCS) moves, field exercises, and

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[17]Face-to-face interviews are so costly that their expense rarely can be justified unless the sample is clustered in some way (e.g., a manageable number of units/bases). Using face-to-face interviews often involves making sample-size compromises—a smaller personal interview sample versus a much larger mail-survey sample.

deployments). Mail-survey response rates among Army personnel, especially in the lower ranks, and their spouses are much lower than in the military population as a whole.[18] It appears that Army personnel in certain types of units (e.g., combat) are much more difficult to locate and survey because they are frequently away from their regular duty station due to deployments, field exercises, or field alerts that can take a matter of days, weeks, or months.[19] It is difficult, if not impossible, to survey individuals when they are "in the field."

Phone Surveys. Telephone surveys offer a timely, cost-effective way to collect high-quality data. Advantages include: (1) lower costs (compared with personal interviews), (2) the potential for a short data collection period, and (3) the likely better response rates from a list sample, compared with mail surveys (Fowler, 1990). Many civilian agencies now use computer-assisted telephone interviewing (CATI) to reduce the lag time between data collection and analysis.

With CATI, the survey data are entered directly into a computer during the interview. Data collection can be completed in a matter of days or weeks (depending on the sample size and facility capacity), and results can be produced immediately after the field period ends. Although phone interviews are far less expensive than personal interviews (usually less than half the cost of a face-to-face survey), they are generally more expensive than mail surveys (sometimes by a factor of at least 4 to 1).

Unfortunately, telephone surveys (at least for the initial interview) are usually not options for most military surveys because phone numbers are not routinely collected and stored in centralized personnel files. The only way to get phone numbers is to contact the

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[18]For example, on the last worldwide DoD mail survey of military personnel, the 1985 DoD Survey of Officers and Enlisted Personnel, the response rate among Army junior enlisted personnel was 59 percent, compared with rates averaging from 74 to 77 percent for their counterparts in the other three services. The same response-rate trend was observed among Army officers—the overall DoD average return rate was 77 percent whereas the Army officer rate was only 65 percent. Participation rates for the spouses of Army active-duty military members were even lower on the 1985 DoD Survey: Overall, 51 percent of active-duty spouses responded, but the participation rate among Army spouses averaged only 45 percent, despite repeated mailings to nonrespondents. Source: DMDC (1986).

[19]For example, the National Opinion Research Center (NORC) found that the lower baseline military response to the National Longitudinal Military Sample (NLS-Y) was due primarily to "locating" problems associated with people who were unavailable for extended periods of time or were in remote locations. When on-site interviews were conducted at sampled installations, the refusal rate among junior enlisted personnel was extremely low, indicating that military nonresponse was due primarily to a location rather than refusal problem. Source: Unpublished field results from Alisu Schoua-Glusberg, Project Director-NLS, NORC (December 1990) and unpublished RAND analysis of NLS-Y response rates by Christine Peterson (December 1990).

soldier or his organizational superior (e.g., unit commander) directly for the information.[20] Appendix A reviews this problem and potential remedies.

Mixed-Mode Surveys. Mixed-mode surveys (i.e., those that combine several forms of data collection) are another option that may offer cost savings. For instance, a baseline survey may use a cost-effective mail-survey approach for a large sample. Then, all (or a sample) of the initial respondents are given a more expensive interviewer-administered survey (e.g., a telephone survey) to maximize the amount and quality of information that can be reasonably collected. Alternatively, a high percentage of sampled respondents could be enrolled into a longitudinal panel study. Detailed data are collected for future longitudinal tracking to maximize response rates and panel retention. Subsequent follow-up with panel members can take place using mail or telephone follow-up or a combination of methods that can vary over time to fit the research needs.

Regardless of the survey method selected, all collections of personal information from Army personnel (or their families) must conform with the Privacy Act requirements. The Privacy Act requires that survey participants be informed about five key aspects of the study: (1) the authority for collecting the information; (2) whether participation is mandatory or voluntary; (3) the principal purposes for collecting the information; (4) the routine uses which may be made of the information; and (5) the effects, if any, of not providing the information. A Privacy Act statement (which incorporates the informed consent elements mentioned above) must be included in all military-approved surveys.

CONSIDERATIONS IN CHOOSING AN APPROPRIATE MODE

The following considerations enter into the choice of the optimum data collection mode.

Research Objectives and Their Design Implications

A fundamental issue is whether it is imperative for study results to generalize to the entire study population. If so, a representative sample survey is needed. Otherwise, a scientifically less rigorous qualitative approach may suffice to identify major issues and trends.

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[20]CFSC's ability to mount a quick-response survey by mail or phone would have been dramatically better if accurate home addresses and phone numbers for spouses had been available in an accessible format. For example, if military members had been required to complete a short spouse locator form (as part of the emergency contact/casualty record notification process) prior to deployment, this information could have been processed efficiently via optical scanning or other efficient data-entry procedures. Such a procedure could have yielded computerized information that could have been retained both in the field as well as at the home base to facilitate family locating efforts.

Available Lead Times

In the military context, the necessary lead times required to design and execute a sample survey may not exist. Especially during transitions to war, it may prove infeasible to design and implement a traditional sample survey so as to realize its distinct potential advantages. Short lead times may produce flawed sample design, limited testing of the questionnaire, and a low response rate. The lead times available, in short, may narrow the range of data collection options.

Available Staff and Facilities

Mounting a quick-response survey requires substantial staff and technical resources for planning, sample design, sample selection, questionnaire preparation, pretesting, data collection, and processing. Staff members need to plan the sequence of steps in the survey and attend to technical and administrative details to ensure success. When the survey timelines are very tight, this creates an even greater demand for a well-defined survey management structure for overseeing all interrelated aspects of the sample design, questionnaire design, and fieldwork.

Availability of Support From Top-Level Military Leaders

Collecting spouse addresses and phone numbers requires a high level of administrative support from sampled bases, units, and their organizational superiors. Support from high-ranking military officers is essential to provide administrative resources for such a survey through coordination of requirements, arranging for pretests, resolving sampling problems, and monitoring the field administration. The feasibility of arranging that level of administrative support is a fourth consideration. An effective way of doing this is to endorse the survey in writing by sending advance letters and notices to sampled units and their organizational superiors to encourage survey participation.

CONCLUSION

Conducting policy research in a dynamic and changing military environment creates a special need for quick-response mechanisms that maximize the research team's design flexibility (within reasonable costs). In meeting these challenges, it is often necessary for the designers to develop a flexible approach that emphasizes custom-tailored survey design and state-of-the-art survey methodology.

Increasingly, survey researchers have turned to telephone surveys, especially CATI, to achieve several key research objectives: high-quality data, acceptable response rates, and

quick data turnaround at reasonable costs. The following section presents specific recommendations on this point.

4. RECOMMENDATIONS

A specific lesson from ODS is that conventional sample survey designs mesh poorly with the change inherent in transition to war. ODS operations exemplify one type of contingency, but the lesson is more generally applicable. Change during peacetime generates new information needs, and those needs will likely accelerate in the 1990s.

To accommodate future realities, we devised a flexible survey plan that can be tailored to a broad spectrum of unforeseeable circumstances in peacetime and wartime contingencies. The plan affords the capacity for quick-turnaround response to family support information needs on demand. We recommend this plan be considered for future use.

FEATURES OF THE PROPOSED SURVEY PLAN

Our proposed survey plan relies on an ongoing panel of families who are recontacted periodically by telephone (to confirm their location) and are available for repeated computer-assisted telephone interviewing (CATI). To achieve representativeness, the sample is designed so that data gathered from it can be generalized to all Army families. The key innovation pertains to timeliness: the elapsed time from when the policymaker poses a question to the time when the survey delivers a generalizable answer can be narrowed at will to afford answers as quickly as needed.

Three features of this survey plan enhance its feasibility. First, lines of communication are maintained with an original sample, thereby providing a relatively easy and flexible way to field "minisurveys" as needed in response to unforeseen information needs. Second, workload can be varied to meet information needs according to level of urgency. Third, when soldiers who were deployed eventually reunite with families, a post-war reunion survey can be mounted swiftly using an existing sample whose history of recontact will improve overall response rates.

Generalizability is achieved by establishing a longitudinal panel that includes a representative sample of Army spouses to be surveyed periodically by phone. Quick response is achieved by using state-of-the-art CATI to survey the sampled members in a matter of weeks. In this mode, researchers can develop special-topic modules, have those questions administered on a timely basis, receive data for analysis, and answer the questions policymakers pose on a timely and affordable basis.[21]

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[21]A CATI approach responds to the need for quick-turnaround information at an affordable price (e.g., a 20-minute CATI phone interview would cost about $200 per case).

PANEL DESIGN

A longitudinal survey can serve as a relatively inexpensive source of timely information over the course of a deployment and eventual reunion. Moreover, it can meet a broad spectrum of information needs:

- Quick-response information needs pertaining to emergency issues, derived from "miniature" samples;
- Less urgent information needs, based on larger samples that afford more precise measures;
- Adaptability to changing concerns as issues evolve;
- Longitudinal information for disentangling causal relations.

Our recommended panel survey tracks the same families over time. Once established, the panel will require only a low-level effort to maintain contact with sampled families during the indeterminate period of a transition to war and the war period. Standard information can be elicited from the panel through periodic telephone interviews. When urgent questions needing quick-turnaround answers arise, they can be added to the next reinterview.

Our recommended sample design calls for establishing a panel of approximately 600 spouses for telephone interview.[22] This sample will be randomly partitioned into several groups (e.g., three groups of 200 spouses). These "miniature samples" (or *replicates*) are probability samples of the active-duty universe. Thus, data collected from any one replicate will generalize to the entire universe from which the three replicates have been drawn, and the replicates themselves can be accumulated into larger samples. (The 600 spouses could be partitioned into any useful number of replicates, but for the sake of illustration, let us assume three replicates, denoted A, B and C.)

We recommend an initial round of telephone surveys of all 600 spouse respondents. Thereafter, the respondents in one of the three replicates should be recontacted each month (rotating through the entire sample of 600 families every three months).[23]

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[22]Our illustration concerns only active-duty personnel, although a similar design could be used for the reserves.

[23]For example, if the initial telephone survey were completed by, say, the end of January, then the survey administrators would recontact every spouse in replicate A during February, every spouse in replicate B during March, and every spouse in replicate C during April; then repeat the sequence during May, June, and July; and so on.

TIMELINESS AND LEVEL OF EFFORT

This recommended design translates into a level of effort sufficient to contact 200 families a month. We estimate that it would take on average about 30 minutes per family to conduct a short telephone interview with 200 spouses to verify their current address and ask a few brief questions. We assume that the actual time spent talking with each family is no more than 10 minutes, and that it takes four dialings per respondent (4 calls x 5 minutes = 20 minutes) to reach the family. From a survey contractor's perspective, this requirement translates into 100 interviewing hours per month (30 minutes x 200 families) for the brief family calls.

Were the goal to complete these interviews in a single week, it would likely take a crew of five part-time interviewers who work about 20 hours per week (primarily evenings and weekends). Obviously, these same calls could be made in a few days if more staff were available (or if the existing staff could work more hours to reach the equivalent of 2.5 FTEs for that survey week).

Alternatively, if the goal for the month was to complete a longer (e.g., 20–30 minute) interview with each family, the total interviewing time would nearly double from 100 hours to close to 200 hours (60 minutes x 200 families). For the reasons cited above, it would take a crew of 10 part-time interviewers to complete full interviews with 200 families in a week (10 interviews x 20 hours/week = 200 hours).

In both options, the workload can be varied depending on available staff and facilities, rising or falling as other requirements dictate.

Each time a respondent is contacted in this rotation, the interviewer will confirm the current phone number and address, identify any impending change in either, and ascertain an alternate contact for future tracking. At the beginning of each calendar month, key questions pertaining to pressing Army concerns will be added to the CATI schedule for administration during that month. At the end of the month, responses to those questions become available from an entire replicate and generalize to the study population originally sampled.

With the recontact operation in place, it then becomes feasible to query a "miniature" representative sample within a month (or less), process and analyze the data on an expedited basis, and furnish statistically representative answers to questions posed the preceding month.[24] To expedite response time, one can either increase the rate of recontact

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[24]With a sample of 200, for example, each survey wave could be used to estimate a prevalence rate, the fraction of all spouses who missed a predeployment briefing, for example, or the fraction of families who were more than two months behind in paying rent. Such rates could be estimated to within about 5.9 percent for fractions near 50 percent or about 2.6 percent for fractions near 5 percent (or 95 percent). For the entire panel of 600 respondents,

or initiate recontact of the next replicate ahead of schedule. In theory, an intensive effort to recontact the 200 spouses in one replicate might be initiated and completed within a week.

ADVANTAGES OF THE SURVEY PLAN

The above plan has several advantages. First, by maintaining lines of communication with the original sample, it provides a relatively easy and flexible way to field "minisurveys" as needed in response to unforeseen information needs. Second, when the time for a reunion survey arrives, the necessary sample has already been drawn and the recontact information (address, telephone number) is fresh: Every spouse of a returning soldier will have been contacted no more than three months beforehand, which is conducive to higher response rates than would be obtained from an entirely new sample.

MAKING THE SURVEY PLAN WORK

The feasibility of our proposed survey plan hinges on three key prerequisites: (1) up-to-date telephone numbers, (2) high retention rate of sampled respondents throughout the survey, regardless of subsequent moves, and (3) a detailed survey plan.

Obtaining Names, Addresses, and Phone Numbers of Intended Panel Members

During a transition to war or other crisis, the Army needs to maintain an up-to-date telephone contact for the immediate family member(s) of each soldier. However, spouses often change residence and living arrangements, severing whatever point of contact the Army had with them before the soldier left. This "family location" problem necessitates having a primary point of contact at each sample base to help coordinate the work involved in locating addresses and phone numbers of each spouse to be included in the survey sample (see App. A).

High Retention Rate of Sampled Respondents

Many of the spouses in the target population (especially spouses of junior enlisted personnel) fall into lower income, minority, less educated, and residentially mobile populations. Our proposed plan includes an efficient way of maintaining frequent phone contact with Army families who are similar in many ways to their civilian counterparts.

Despite these tracking efforts, we must anticipate at least some attrition, which can be dealt with in two ways:

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these confidence intervals would be about 60 percent narrower. Estimates with this degree of precision would suffice for certain kinds of descriptive information sought, for example, that 5 percent (+/- 2.6 percent) missed all predeployment briefings.

- Increase the size of the initial sample. If 600 respondents suffice for the study, and if a retention rate of 80 percent is expected, then the initial sample size could be increased to 750.
- During the survey, make a special effort to recontact any families that were "lost" during the earlier recontact period(s). Use military and civilian tracking sources, as needed, in addition to locator data supplied by individual families as a means of recontacting the "lost" spouses.

Detailed Survey Plan

The proposed CATI survey requires developing a three-part survey plan for handling the sample design, questionnaire design, and field-data collection procedures. The plan must outline the operational steps (and realistic schedules and resources) involved in carrying out the entire survey process. Those steps include initial concept development and preliminary survey planning, questionnaire preparation and pretesting, sample design and implementation, survey administration design, data collection and field monitoring, data processing, and survey documentation.

SURVEY INSTRUMENTATION

Survey instrumentation should measure (1) relevant characteristics of families of deployed personnel, (2) their needs for support, (3) their use of existing services, (4) any other sources of family support they have relied on, and (5) how well these formal and informal supports have met family-related needs. Some necessary instrumentation is already available. Pretested questions (developed for RAND's 1987 Surveys of Army Military Spouses and Army Officers and Enlisted Personnel) could be adapted for telephone administration with little or no modification (see App. B). These questions measure key demographic and socioeconomic characteristics of family members, identify families' needs, and gauge their use of existing Army services and how satisfactorily their needs have been met. Other factors (e.g., newly evolving sources of support) would necessitate developing and pretesting new questions for use in the survey.

BROADER APPLICABILITY

The recommended survey plan is a useful model for various future military data collection efforts. The need for quick-response information about military personnel is not confined to the family support function. It arises in all organizations that deal with

personnel issues.[25] Congress, for example, often requests data on issues that deal with the behavior, dispositions, and views of military personnel.

Current issues in this category, for example, include the extent of financial burdens imposed by the ODS deployment, rates of utilization for various government-provided services, and the reactions of military personnel to alternative compensation packages (such as terms of separation during the planned defense drawdown). As often as not, military leaders and their staff scramble to assemble isolated facts and figures to address such questions, yet the available information may be too dated or fragmentary to be credible.

The proposed survey plan could be modified to represent a "standing" panel of survey respondents ready to be queried to obtain up-to-date information on any subject that becomes topical. The same mechanism, of course, could also furnish data for studying longer-term defense policy issues in depth—particularly those that need longitudinal data collection. A "standing" panel could greatly improve the policy relevance of information about soldiers that reaches top decisionmakers in the Executive Branch and the Congress.

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[25]For example, DoD's inhouse survey branch (Survey and Market Analysis Division, Defense Manpower Data Center) has successfully used CATI approaches to conduct quick-response surveys of military applicants (1981, 1983 Applicant Survey) and youth (annual Youth Attitude Tracking Survey) to collect timely information about the enlistment decisionmaking process.

Appendix A
MAINTAINING TELEPHONE CONTACT POINTS WITH MILITARY FAMILIES

During a transition to war, the Army needs to maintain an up-to-date telephone contact for the immediate family member(s) of each soldier for several reasons: (1) to streamline the casualty notification process, (2) to monitor Army family support needs and identify newly emerging needs, and (3) draw samples of Army families that will truly represent some population of interest (e.g., spouses of deployed soldiers). A transition to war magnifies the "family location" problem: Spouses often change residence and living arrangements, severing whatever point of contact the Army had with them before the soldier left.

A key prerequisite for the survey plan we propose is access to current telephone numbers for the intended sample of panel members. Active-duty military families are a highly mobile population. Home telephone numbers and mailing addresses change often, hampering survey efforts even under peacetime conditions. During a transition to war or other crisis, locating the sampled family becomes even more problematic. Were surveyors to interview only those they could reach, their sample would be biased in favor of families that stayed put.

This appendix discusses the "family locating" problem and recommends procedures for handling it in advance of any proposed survey. In view of the broad and enduring nature of this problem, we also outline a self-service "family check-in" system that could be designed in advance and activated in times of crisis.

BACKGROUND

Telephone surveys (at least for the initial interview) generally are not options for the military because phone numbers are not routinely available in centralized personnel files. Currently, the only way to get phone numbers is to contact the soldier or his organizational superior (e.g., unit commander) directly for the information.

The Defense Enrollment and Eligibility Reporting System (DEERS) is the primary source of home mailing addresses for active-duty families. DEERS is a worldwide computer system that keeps track of dependents who are eligible for military medical benefits. RAND and DoD experience indicates that only about two-thirds of the addresses in the DEERS files are current for active-duty spouses; the remaining one-third are either out-of-date or

missing. For reserve families, home-address records reputedly are more accurate (according to DoD staff familiar with these files).

Telephone numbers are more problematic. First, home telephone numbers for spouses are not routinely collected or centrally maintained in computerized form; nor do most unit-level personnel maintain accurate phone lists for all spouses of unit members. Second, during a transition to war or other crisis, many spouses may change residence and living arrangements.

Phone surveys of military families are rarely conducted with sufficient lead time to develop and implement a plan for collecting locating information from base-level personnel files. Logistically, it is difficult and time-consuming to obtain unit-level cooperation to collect and return spouse addresses and phone numbers in a timely manner, especially for a large and geographically dispersed sample. Long lead times (two to three months or more) are needed to follow up with nonresponding units; even then, phone numbers may be unavailable for a high percentage of sampled families.

FEASIBLE APPROACHES

Collecting accurate phone numbers for spouses in advance would greatly facilitate a quick-response CATI survey in times of crisis. The only feasible alternative now is to send staff on-site to trace the information when phone numbers are urgently needed. Doing so necessitates having a primary point of contact at each sample base to help coordinate the work involved in locating phone numbers of each spouse to be included in the survey sample.

1. Use "Spouse Locator" Forms

One possibility would be to have military members complete a short "spouse locator" form (as part of the emergency contact/casualty record notification process) prior to deployment. Processing this information via optical scanning or other efficient data entry procedures could yield computerized data for retention both in the field and at the home base. Thereafter, persons authorized to locate a family member for any purpose could be given access to that information.

2. Establish a Nationwide Army Family "Check-In" System

A further way to remedy the "family location" problem would be to establish a master database of telephone contact points to each soldier's immediate family members and encourage those individuals to build the database via telephone. The objective would be for each such individual to "check in," registering a current phone number via touch-tone

telephone. For example, a soldier's spouse (or, for that matter, any relative) would merely dial a toll-free number and enter (1) the soldier's social security number (SSN), (2) the spouse's own SSN, and (3) the current phone number where the spouse can be reached. During transition to war or other crisis, public service announcements on national and local media periodically would encourage spouses who had moved to "check in" from wherever they now reside.

Inevitably, many family members would fail to check in. Others, however, could do so for them. Any person (e.g., a close friend or relative) could "check in" any *other* individual if the former one possessed the necessary SSNs. A mother, for example, could check in a soldier's wife if she knew both her son's and her daughter-in-law's SSNs.[26] In short, the Army could elicit and continually update family location information by capitalizing on the efforts of each soldier's entire kin network.

A nationwide "check-in" system would afford the Army a continuously updated telephone contact for the immediate family member(s) of each soldier. Such information would streamline casualty notification, quick-response surveys, or other family-support applications during transition-to-war or other crisis.

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[26]Because a system like this could be deliberately abused, safeguards would be needed.

Appendix B
SURVEY INSTRUMENTATION

A variety of questionnaire items were developed for RAND's 1987 Surveys of Army Military Spouses and Army Officers and Enlisted Personnel and RAND's 1990 Health Care Reform Evaluation Study. RAND has successfully administered these questionnaire items to several thousand military members and spouses. Each item was thoroughly pretested and could be adapted for a panel telephone survey like the one we recommend. Copies of all questionnaires are available from RAND's Survey Research Group. The 1987 Army survey forms are reprinted in *Army Families and Soldier Readiness*, Audrey Burnam et al., R-3884-A, forthcoming.

Survey designers also should consult related DoD and civilian surveys to identify previously tested and validated items from past data collection efforts. Two especially useful sources of measures are:

- Demographic Surveys Division, U.S. Bureau of the Census, Washington, DC, routinely conducts surveys on a wide range of topics, including unemployment, health, housing, education, employment, income, schools, and the like. Telephone: (301) 763-2776.
- Defense Manpower Data Center, Survey and Market Analysis Division, Arlington, VA, conducts periodic cross-sectional surveys targeted at both preservice and in-service populations at different points of the military life-cycle. Telephone: (703) 696-5826.

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